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## WE CLAIM:

1. A method for recovering target speech based on speech segment detection under a stationary noise, the method comprising:

a first step of receiving target speech emitted from a sound source and a noise emitted from another sound source and forming mixed signals at a first microphone and at a second microphone, which are provided at separate locations, performing the Fourier transform of the mixed signals from a time domain to a frequency domain, and extracting estimated spectra Y\* and Y corresponding to the target speech and the noise by use of the Independent Component Analysis;

a second step of separating the estimated spectra Y\* into an estimated spectrum series group y\* in which the noise is removed and an estimated spectrum series group y in which the noise remains by applying separation judgment criteria based on a kurtosis of an amplitude distribution of each of estimated spectrum series in Y\*;

a third step of detecting a speech segment and a noise segment in a frame number domain of a total sum F of all the estimated spectrum series in  $y^*$  by applying detection judgment criteria based on a predetermined threshold value  $\beta$  that is determined by a maximum value of F; and

a fourth step of extracting components falling in the speech segment from each of the estimated spectrum series in Y\* to generate a recovered spectrum group of the target speech, and performing the inverse Fourier transform of the recovered spectrum group from the frequency domain to the time domain to generate a recovered signal of the target speech.

- 2. The method set forth in Claim 1, wherein the detection judgment criteria define the speech segment as a frame number range where the total sum F is greater than the threshold value β and the noise segment as a frame number range where the total sum F is less than or equal to the threshold value β.
- 3. A method for recovering target speech based on speech segment detection under a stationary noise, the method comprising:

a first step of receiving target speech emitted from a sound source and a noise emitted from another sound source and forming mixed signals at a first microphone and at a second microphone, which are provided at separate locations, performing the Fourier transform of the mixed signals from a time domain to a frequency domain, and extracting estimated spectra Y\* and Y corresponding to the target speech and the noise by use of the Independent Component Analysis;

a second step of separating the estimated spectra Y\* into an estimated spectrum series group y\* in which the noise is removed and an estimated spectrum series group y in which the noise remains by applying separation judgment criteria based on a kurtosis of an amplitude distribution of each of estimated spectrum series in Y\*:

a third step of detecting a speech segment and a noise segment in the time domain of a total sum F of all the estimated spectrum series in  $y^*$  by applying detection judgment criteria based on a predetermined threshold value  $\beta$  that is determined by a maximum value of F; and

a fourth step of performing the inverse Fourier transform of the estimated spectra Y\* from the frequency domain to the time domain to generate a recovered signal of the target speech and extracting components falling in the speech segment from the recovered signal of the target speech to recover the target speech.

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4. The method set forth in Claim 3, wherein the detection judgment criteria define the speech segment as a time interval where the total sum F is greater than the threshold value  $\beta$ , and the noise segment as a time interval where the total sum F is less than or equal to the threshold value  $\beta$ .

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- 5. The method set forth in Claim 1, 2, 3, or 4, wherein the kurtosis of the amplitude distribution of each of the estimated spectrum series in Y\* is evaluated by means of entropy E of the amplitude distribution.
- 30 6. The method set forth in Claim 5, wherein the separation judgment criteria are given as:

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if the entropy E of an estimated spectrum series in Y\* is less than a
predetermined threshold value α, the estimated spectrum series in Y\* is assigned to
the estimated spectrum series group y\*; and

(2) if the entropy E of an estimated spectrum series in Y\* is greater than or equal
to the threshold value α, the estimated spectrum series in Y\* is assigned to the estimated spectrum series group y.